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Serial No.: Not Yet Received (Filed Contemporaneously with Application)

Filing Date: January 9, 2004

Applicant: Richard L. McCreery

Entitled: MICRO-ELECTRONIC JUNCTIONS AND DEVICES CONTAINING SAME

Commissioner for Patents
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Sir:

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.97-1.98

The following is submitted in accordance with 37 CFR §§ 1.97-1.98 and the provisions of MPEP §§ 609 and 707.05 (b). The following list of art is already of record and fully discussed in the parent case, Serial No. 09/755,437, filed January 5, 2001, and therefore, copies are not attached.

The references and information are listed below and on attached form PTO-1449.

U.S. PATENTS

U.S. PATENT NUMBER	INVENTOR(S)
6,103,868	Heath et al.
6,128,214	Kuekes et al.
4,828,917	Wegner et al.
5,846,909	McDevitt et al.
5,908,692	Hamers et al.

FOREIGN PATENT DOCUMENTS

COUNTRY	PATENT NO.	INVENTOR(S)
NONE		

OTHER DOCUMENTS

1. C.A. Mirkin, M.A. Ratner, "*Molecular Electronics*", Annu. Rev. Phys. Chem., 1992, **43**, 719 - 754.
2. M.A. Reed, J.M. Tour, "*Computing with Molecules*", Scientific American, 2000, 86-93
3. L.A. Bumm, J.J. Arnold, M.T. Cygan, T.D. Dunbar, T.P. Burgin, L. Jones, D.L. Allara, J.M. Tour, P.S. Weiss, "*Are single Molecular Wires Conducting?*", Science, 1996, **271**, 1705
4. C. Zhou, M.R. Deshpande, M.A. Reed, L. Jones, J.M. Tour, "*Nanoscale Metal/Self-Assembled Monolayer/Metal Heterostructures*", Appl. Phys. Lett., 1997, **71(5)**, 661.
5. M.A. Reed, C. Zhou, C.J. Muller, T.P. Burgin, J.M. Tour, "*Conductance of a Molecular Junction*", Science, 1997, **278**, 252.
6. L.A. Bumm, J.J. Arnold, T.D. Dunbar, D.L. Allara, P.S. Weiss, "*Electron Transfer through Organic Molecules*", J. Phys. Chem. B., 1999, **103**, 8122-8127.
7. C.P. Collier, E.W. Wong, M. Belohradsky, F.M. Raymo, J.F. Stoddart, P.J. Kuekes, R.S. Williams, J.R. Heath, "*Electronically Configurable Molecular-Based Logic Gates*", Science, 1999, **285**, 391 -393
8. C.P. Collier, G. Mattersteig, E.W. Wong, Y. Luo, K. Beverly, J. Sampaio, F.M. Raymo, J.F. Stoddart, J.R. Heath, "*A [2]Catenane-Based Solid State Electronically Reconfigurable Switch*", Science, 2000, **289**, 1172 - 1175.
9. J. Pinson, J. Saveant, R. Hitmi, "*Process for Modifying the Surface of Carbon-Containing Materials by Electro-Chemical Reduction of Diazonium Salts, Applicable in Particular to Carbon Fibers For Composite Materials: Carbon-Containing Materials So Modified*", French Patent, PCT/FR92/0087, 1992.
10. P. Allongue, M. Delamar, B. Desbat, O. Fagebaume, R. Hitmi, J. Pinson, J.M. Saveant, "*Covalent Modification of Carbon Surfaces by Aryl Radicals Generated from the Electrochemical Reduction of Diazonium Salts*", J. Am. Chem. Soc., 1997, **119**, 201-207

11. Y-C. Liu, R.L. McCreery, "*Reactions of Organic Monolayers on Carbon Surfaces Observed with Unenhanced Raman Spectroscopy*", J. Am. Chem. Soc., 1995, **117**, 11254.
12. S. Ranganathan, R. McCreery, S.M. Majji, M. Madou, "Photoresist-Derived Carbon for Microelectrochemical Applications", *J. Electrochem. Soc.*, **2000**, *147*, 277 – 282.
13. S.N. Yaliraki, M. Kemp, M.A. Ratner, "*Conductance of Molecular Wires: Influence of Molecule-Electrode Binding*", J. Am. Chem. Soc., **1999**, *121*, 3428-3434.
14. T. Rueckes, K. Kim, E. Joselevich, G.Y. Tseng, C. Cheung, C.M. Lieber, "*Carbon Nanotube-based Nonvolatile Random Access Memory of Molecular Computing*", Science, 2000, **289**, 94-97.
15. J. Chen, M.A. Reed, A.M. Rawlett, J.M. Tour, "*Large On-Off Ratios and Negative Differential Resistance in a Molecular Electronic Device*", Science, 1999, **286**, 1551-1552.
16. C. Kergueris, J.P. Bourgoin, S. Palacin, D. Esteve, C. Urbina, M. Magoga, C. Joachim, "*Electron Transport Through a Metal-Molecule-Metal Junction*", Phys. Review B, 1999, **59(19)**, 12505.
17. W. Tian, S. Datta, S. Hong, R. Reifengerger, J.I. Henderson, C.P. Kubiak, "*Conductance Spectra of Molecular Wires*", J. Chem. Physics, 1998, **109(7)**, 2874-2882.
18. D.F. Padowitz, R.J. Hamers, "*Voltage-Dependent STM of Covalently Bound Molecules on Si(100)*", J. Phys. Chem., 1998, **102**, 8541-8545.
19. S. Datta, W. Tian, S. Hong, R. Reifengerger, J.I. Henderson, C.P. Kubiak, "*Current-Voltage Characteristics of Self-Assembled Monolayers by Scanning Tunneling Microscopy*", Phys. Rev. Let., 1997, **79(13)**, 2530-2533.
20. C.H. de Villeneuve, J. Pinson, M.C. Bernard, P. Allongue, "*Electrochemical Formation of Close-packed Phenyl layers on Si (111)*", J. Phys. Chem. B., 1997, **101**, 2415-2420.
21. Y-C Liu, R.L. McCreery, "*Raman Spectroscopic Determination of the Structure and Orientation of Organic Monolayers Chemisorbed on Carbon Electrode Surfaces*", Anal. Chem., 1997, **69**, 2091.
22. C. Joachim, J.K. Gimzewski, R.R. Schlittler, C. Chavy, "*Electronic Transparence of a Single C₆₀ Molecule*", Phys. Rev. Let., **74(11)**, 2102-2105.
23. P. Allongue, M. Delamar, B. Desbat, O. Fagebaume, R. Hitmi, J. Pinson, J.M. Saveant, "*Covalent Modification of Carbon Surfaces by Aryl Radicals Generated from the*

- Electrochemical Reduction of Diazonium Salts*", J. Am. Chem. Soc., 1997, **119**, 201-207.
24. C. P. Andrieux, F. Gonzales, J.M. Saveant, "*Derivatization of Carbon Surfaces by Anodic Oxidation of Arylacetates, Electrochemical Manipulation of the Grafted Films*", J. Am. Chem. Soc., 1997, **119**, 4292-4300.
 25. Peihong Chen, R.L. McCreery, "*Control of Electron Transfer Kinetics at Glassy Carbon Electrodes by Specific Surface Modifiacion*", Anal. Chem., 1996, **68**, 3958.
 26. M.T. Cygan, T.D. Dunbar, J.J. Arnold, L.A. Bumm, N.F. Shedlock, T.P. Burgin, L. Jones, D.L. Allara, J.M. Tour, P.S. Weiss, "*Insertion, Conductivity, and Structures of Conjugated Organic Oligomers in Self-Assembled Alkanethiol Monolayers of Au(111)*", J. Am. Chem. Soc., 1998, **120**, 2721-2732.
 27. Y. Xia, N. Ventateswaran, D. Qin, J. Tein, G.M. Whitesides, "*Use of Electroless Silver as the Substrate in Microcontact Printing of Alkanethiols and Its Application in Microfarication*", Langmuir, 1998, **14**, 363-371.
 28. D.G. Walter, D.J. Campbell, C.A. Mirkin, "*Photon-Gated Electron Transfer in Two-Component Self-Assembled Monolayers*", J. Phys. Chem. B., 1999, **103**, 402-405
 29. G.S. McCarty, P.S. Weiss, "*Scanning Probe Studies of Single Nanostructures*", Chem. Rev., 1999, **99**, 1983-1990.
 30. Y. Xia, J.A. Rogers, K.E. Paul, G.M. Whitesides, "*Unconventional Methods for Fabricating and Patterning Nanostructures*", Chem. Rev., 1999, **99**, 1823-1848.
 31. D.H. Gracias, J. Tien, T.L. Breen, C. Hsu, G.M. Whitesides, "*Forming-Electrical Networks in Three Dimensions by Self-Assembly*", Science, 2000, **289**, 1170-1172.
 32. D.I. Gittens, D. Bethell, R.J. Nichols, D.J. Schiffrin, "*Diode-Like Electron Transfer Across Nanostructured Films Containing a Redox Ligand*", J. Mater. Chem., 2000, **10**, 79-83.
 33. M.P. Schwartz, M.D. Ellison, S.K. Coulter, J.S. Hovis, R.J. Hamers, "*Interaction of π -Bonded Semiconductor Surfaces: Structure, Selectivity, and Mechanistic Implications*", J. Am. Chem. Soc., Web Edition 2000.
 34. R.J. Hamers, S.K. Coulter, M.D. Ellison, J.S. Hovis, D.F. Padowitz, M.P. Schwartz, C.M. Greene, J.N. Russell, "*Cycloaddition Chemistry of Organic Molecules with Semiconductor Surfaces*", Acc. Chem. Res., 2000.
 35. J.S. Hovis, S.K. Coulter, R.J. Hamers, M.P. D'Evelyn, J.N. Russell, J.E. Butler,

"Cycloaddition Chemistry at Surfaces: Reaction of Alkenes with the Diamond (001)-2 x 1 Surface", J. Am. Chem. Soc., 2000, **122**, 732-733.

36. J.J. Storhoff, A.A. Lazarides, R.C. Mucic, C.A. Mirkin, R.L. Letsinger, G.C. Schatz, *"What Controls the Optical Properties of DNA-Linked Gold Nanoparticle Assemblies?"*, 2000, **122**, 4640-4650.
37. M.D. Musick, C.D. Keating, L.A. Lyon, S.L. Botsko, D.J. Pena, W.D. Holliway, T.M. McEvoy, J.N. Richardson, M.J. Natan, *"Metal Films Prepared by Stepwise Assembly. 2 Construction and Characterization of Colloidal Au and Ag Multilayers"*, Chem. Mater., WEB 2000.

The identification of any document herein is not intended to be, and should not be understood as being, an admission that each such document, in fact, constitutes "prior art" within the meaning of applicable law.

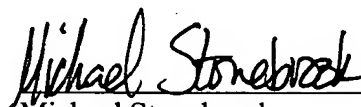
Applicants submit this statement in accordance with their duty of disclosure under 37 C.F.R. §1.56.

Applicants respectfully request that the documents cited herein be made of record in the normal manner and that such documents appear on the printed patent as being considered and made of record.

Respectfully submitted,

Date: Jan. 9, 2004

By:



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Patent and Trademark Office

INFORMATION DISCLOSURE STATEMENT BY APPLICANTS

Examiner's name

Examiner's Initial	Document Number	Date	Name	Class/Sub-class
	6,103,868	08/15/2000	Heath et al.	528/482
	6,128,214	10/03/2000	Kuekes et al.	365/151
	4,828,917	05/09/1989	Wegner et al.	428/333
	5,846,909	12/08/1998	McDevitt et al.	505/233
	5,908,692	06/01/1999	Hamers et al.	428/333

Examiner's Initial	Document Number	Date	Country/Name	Translation? yes/no
	NONE			

1. C.A. Mirkin, M.A. Ratner, "*Molecular Electronics*", Annu. Rev. Phys. Chem., 1992, **43**, 719 - 754.
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3. L.A. Bumm, J.J. Arnold, M.T. Cygan, T.D. Dunbar, T.P. Burgin, L. Jones, D.L. Allara, J.M. Tour, P.S. Weiss, "*Are single Molecular Wires Conducting?*", Science, 1996, **271**, 1705
4. C. Zhou, M.R. Deshpande, M.A. Reed, L. Jones, J.M. Tour, "*Nanoscale Metal/Self-Assembled Monolayer/Metal Heterostructures*", Appl. Phys. Lett., 1997, **71(5)**, 661.

5. M.A. Reed, C. Zhou, C.J. Muller, T.P. Burgin, J.M. Tour, "*Conductance of a Molecular Junction*", Science, 1997, **278**, 252.
6. L.A. Bumm, J.J. Arnold, T.D. Dunbar, D.L. Allara, P.S. Weiss, "*Electron Transfer through Organic Molecules*", J. Phys. Chem. B., 1999, **103**, 8122-8127.
7. C.P. Collier, E.W. Wong, M. Belohradsky, F.M. Raymo, J.F. Stoddart, P.J. Kuekes, R.S. Williams, J.R. Heath, "*Electronically Configurable Molecular-Based Logic Gates*", Science, 1999, **285**, 391 -393
8. C.P. Collier, G. Mattersteig, E.W. Wong, Y. Luo, K. Beverly, J. Sampaio, F.M. Raymo, J.F. Stoddart, J.R. Heath, "*A [2]Catenane-Based Solid State Electronically Reconfigurable Switch*", Science, 2000, **289**, 1172 - 1175.
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10. P. Allongue, M. Delamar, B. Desbat, O. Fagebaume, R. Hitmi, J. Pinson, J.M. Saveant, "*Covalent Modification of Carbon Surfaces by Aryl Radicals Generated from the Electrochemical Reduction of Diazonium Salts*", J. Am. Chem. Soc., 1997, **119**, 201-207
11. Y-C. Liu, R.L. McCreery, "*Reactions of Organic Monolayers on Carbon Surfaces Observed with Unenhanced Raman Spectroscopy*", J. Am. Chem. Soc., 1995, **117**, 11254.
12. S. Ranganathan, R. McCreery, S.M. Majji, M. Madou, "Photoresist-Derived Carbon for Microelectrochemical Applications", *J. Electrochem. Soc.*, **2000**, *147*, 277 – 282.
13. S.N. Yaliraki, M. Kemp, M.A. Ratner, "*Conductance of Molecular Wires: Influence of Molecule-Electrode Binding*", J. Am. Chem. Soc., **1999**, *121*, 3428-3434.
14. T. Rueckes, K. Kim, E. Joselevich, G.Y. Tseng, C. Cheung, C.M. Lieber, "*Carbon Nanotube-based Nonvolatile Random Access Memory of Molecular Computing*", Science, 2000, **289**, 94-97.
15. J. Chen, M.A. Reed, A.M. Rawlett, J.M. Tour, "*Large On-Off Ratios and Negative Differential Resistance in a Molecular Electronic Device*", Science, 1999, **286**, 1551-1552.
16. C. Kergueris, J.P. Bourgoin, S. Palacin, D. Esteve, C. Urbina, M. Magoga, C. Joachim, "*Electron Transport Through a Metal-Molecule-Metal Junction*", Phys. Review B, 1999,

59(19), 12505.

17. W. Tian, S. Datta, S. Hong, R. Reifengerger, J.I. Henderson, C.P. Kubiak, "Conductance Spectra of Molecular Wires", J. Chem. Physics, 1998, **109**(7), 2874-2882.
18. D.F. Padowitz, R.J. Hamers, "Voltage-Dependent STM of Covalently Bound Molecules on Si(100)", J. Phys. Chem., 1998, **102**, 8541-8545.
19. S. Datta, W. Tian, S. Hong, R. Reifengerger, J.I. Henderson, C.P. Kubiak, "Current-Voltage Characteristics of Self-Assembled Monolayers by Scanning Tunneling Microscopy", Phys. Rev. Lett., 1997, **79**(13), 2530-2533.
20. C.H. de Villeneuve, J. Pinson, M.C. Bernard, P. Allongue, "Electrochemical Formation of Close-packed Phenyl layers on Si (111)", J. Phys. Chem. B., 1997, **101**, 2415-2420.
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22. C. Joachim, J.K. Gimzewski, R.R. Schlittler, C. Chavy, "Electronic Transparence of a Single C₆₀ Molecule", Phys. Rev. Lett., **74**(11), 2102-2105.
23. P. Allongue, M. Delamar, B. Desbat, O. Fagebaume, R. Hitmi, J. Pinson, J.M. Saveant, "Covalent Modification of Carbon Surfaces by Aryl Radicals Generated from the Electrochemical Reduction of Diazonium Salts", J. Am. Chem. Soc., 1997, **119**, 201-207.
24. C. P. Andrieux, F. Gonzales, J.M. Saveant, "Derivatization of Carbon Surfaces by Anodic Oxidation of Arylacetates, Electrochemical Manipulation of the Grafted Films", J. Am. Chem. Soc., 1997, **119**, 4292-4300.
25. Peihong Chen, R.L. McCreery, "Control of Electron Transfer Kinetics at Glassy Carbon Electrodes by Specific Surface Modifiacton", Anal. Chem., 1996, **68**, 3958.
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27. Y. Xia, N. Ventateswaran, D. Qin, J. Tein, G.M. Whitesides, "Use of Electroless Silver as the Substrate in Microcontact Printing of Alkanethiols and Its Application in Microfarication", Langmuir, 1998, **14**, 363-371.
28. D.G. Walter, D.J. Campbell, C.A. Mirkin, "Photon-Gated Electron Transfer in Two-

- Component Self-Assembled Monolayers*", J. Phys. Chem. B., 1999, **103**, 402-405
29. G.S. McCarty, P.S. Weiss, "Scanning Probe Studies of Single Nanostructures", Chem. Rev., 1999, **99**, 1983-1990.
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 31. D.H. Gracias, J. Tien, T.L. Breen, C. Hsu, G.M. Whitesides, "Forming-Electrical Networks in Three Dimensions by Self-Assembly", Science, 2000, **289**, 1170-1172.
 32. D.I. Gittens, D. Bethell, R.J. Nichols, D.J. Schiffrin, "Diode-Like Electron Transfer Across Nanostructured Films Containing a Redox Ligand", J. Mater. Chem., 2000, **10**, 79-83.
 33. M.P. Schwartz, M.D. Ellison, S.K. Coulter, J.S. Hovis, R.J. Hamers, "Interaction of π -Bonded Semiconductor Surfaces: Structure, Selectivity, and Mechanistic Implications", J. Am. Chem. Soc., Web Edition 2000.
 34. R.J. Hamers, S.K. Coulter, M.D. Ellison, J.S. Hovis, D.F. Padowitz, M.P. Schwartz, C.M. Greene, J.N. Russell, "Cycloaddition Chemistry of Organic Molecules with Semiconductor Surfaces", Acc. Chem. Res., 2000.
 35. J.S. Hovis, S.K. Coulter, R.J. Hamers, M.P. D'Evelyn, J.N. Russell, J.E. Butler, "Cycloaddition Chemistry at Surfaces: Reaction of Alkenes with the Diamond (001)-2 x 1 Surface", J. Am. Chem. Soc., 2000, **122**, 732-733.
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 37. M.D. Musick, C.D. Keating, L.A. Lyon, S.L. Botsko, D.J. Pena, W.D. Holliway, T.M. McEvoy, J.N. Richardson, M.J. Natan, "Metal Films Prepared by Stepwise Assembly. 2 Construction and Characterization of Colloidal Au and Ag Multilayers", Chem. Mater., WEB 2000.

Examiner	Date Considered
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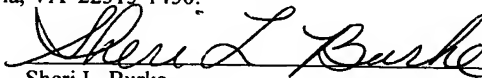
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